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WHAT IS CLAIMED

- 1. A plasticized bone graft, comprising:
- a cleaned bone graft comprising one or more plasticizers.
- 2. A plasticized bone graft suitable for transplantation into a human, comprising: a bone graft having an internal matrix essentially free from bone marrow elements; and one or more plasticizers contained in said internal matrix.
- 3. A plasticized bone graft comprising:

a cleaned bone graft; and

one or more plasticizers, wherein said cleaned bone graft is impregnated with said one or more plasticizers.

4. A method for producing a plasticized bone graft suitable for transplantation into a human, comprising:

impregnating a cleaned bone graft with one or more plasticizers to produce a plasticized bone graft.

5. The method of claim 4, said step of impregnating, comprising:

incubating said cleaned bone graft with a plasticizer composition comprising one or more plasticizers and one or more biocompatible solvents.

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- 7. The method of claim 5, wherein incubating comprises soaking said cleaned bone graft in said plasticizer composition.
 - 8. The method of claim 7, wherein said soaking is carried out under negative pressure.
- 9. The bone graft of any one of claims 1, 2, or 3, wherein said bone graft is suitable for direct transplant into a human without rehydration.
- 10. The method of claim 4, wherein said cleaned bone graft is essentially free from bone marrow elements.
- 11. The method of claim 6, wherein said one or more plasticizers are present in said plasticizer composition in a weight ratio of from 30 to 90 wt%, and said one or more alcohols are present in said plasticizer composition in a weight ratio of from 10 to 70 wt%.
- 12. The method of claim 11, wherein said plasticizer is glycerol and said alcohol is isopropyl alcohol.
- 13. The method of claim 12, wherein said glycerol is present at 30 wt% and said isopropyl alcohol is present at 70 wt%.

- 14. The bone graft of any one of claims 1, 2, or 3, wherein said bone graft is a non-demineralized bone graft.
- 15. The bone graft of any one of claims 1, 2, or 3, wherein said bone graft is a load-bearing bone graft.
 - 16. A plasticized soft tissue graft suitable for transplantation into a human, comprising: a cleaned soft tissue graft having an internal matrix; and one or more plasticizers contained in said internal matrix.
- 17. A plasticized soft tissue graft, comprising:

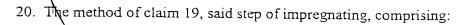
 a cleaned, soft tissue graft; and

 one or more plasticizers, wherein said cleaned soft tissue graft is impregnated with said
 one or more plasticizers.
 - 18. A plasticized soft tissue graft, comprising:

 a cleaned, soft tissue graft comprising one or more plasticizers.
- 19. A method for producing a plasticized soft tissue graft suitable for transplantation into a human, comprising:

impregnating a cleaned, soft tissue graft with one or more plasticizers to produce a plasticized soft tissue graft.

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incubating said cleaned, soft tissue graft with a plasticizer composition comprising one or more plasticizers and one or more biocompatible solvents.

- 21. The method of claim 20, wherein said one or more biocompatible solvents comprise one or more alcohols.
- 22. The method of claim 20, wherein incubating comprises soaking said cleaned, soft tissue graft in said plasticizer composition.
 - 23. The method of claim 22, wherein said soaking is carried out under negative pressure.
- 24. The soft tissue graft of any one of claims 16, 17, or 18, wherein said soft tissue graft is suitable for direct transplant into a human without rehydration.
- 25. The method of claim 21, wherein said one or more plasticizers are present in said plasticizer composition in a weight ratio of from 30 to 90 wt%, and said one or more alcohols are present in said plasticizer composition in a weight ratio of from 10 to 70 wt%.
- 26. The method of claim 25, wherein said plasticizer is glycerol and said alcohol is isopropyl alcohol.

2. The method of claim 26, wherein said glycerol is present at 30 wt% and said isopropyl alcohol is present at 70 wt%.

- 28. The soft tissue graft of any one of claims 16, 17, or 18, wherein said soft tissue graft is a load-bearing soft tissue graft.
- 29. The soft tissue graft of any one of claims 16, 17, or 18, wherein said soft tissue graft is selected from the group consisting of: dura, pericardium, fascia lata, tendons and ligaments
 - 30. A plasticized bone graft comprising:
 a cleaned, non-demineralized bone graft comprising one or more plasticizers.
 - 31. A plasticized load-bearing bone graft, comprising:
 a cleaned, load-bearing bone graft comprising one or more plasticizers.
 - 32. A plasticized load-bearing soft tissue graft, comprising:a cleaned, load-bearing soft tissue graft comprising one or more plasticizers.

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